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January 29, 1997

Enclosed is a copy of the Assabet River Rail Trail Feasibility Study, which examines the possibility of constructing a trail on the Marlborough Branch. This study was done by the Central Transportation Planning Staff (CTPS) for the Massachusetts Highway Department. The request for the study came from the communities of Marlborough, Hudson, Stow, Maynard, and Acton. The communities requested the study through the Metropolitan Area Planning Council (MAPC).

The study concludes that the construction of a trail on the Marlborough Branch is physically feasible. Before proceeding further, the owners of the right-of-way need to be contacted to determine willingness to allow their land for trail use. There are both private and public owners. A major safety issue for this as well as all proposed trails is that each intersection be designed to ensure that trail users have ample opportunity to cross safely.

Once right-of-way issues are resolved, for the project then to proceed to design, the governing body of each community needs to indicate its support for the project. It is anticipated that the maintenance and policing of the trail would be the responsibility of the local communities. Requests by the local communities for design and construction funds need to be coordinated by MAPC; inquiries may be directed to Joan Blaustein at (617) 451-2770.

Previous drafts of this report have been reviewed by the Assabet River Rail Trail Feasibility Study Advisory Committee as well as by the agencies belonging to the Metropolitan Planning Organization. This distribution affords the first review by other state and local officials, local staff and citizens. If you have any comments on the report, they may be sent to the author:

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If you are interested in pursuing this project further, you may wish to contact your local government or the Assabet River Rail Trail (ARRT) organization:

ARRT
c/o Organization for the Assabet River (OAR)
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CBL/cbl
enclosure

Assabet River Rail Trail Feasibility Study

A report produced
by the Central
Transportation
Planning Staff for
the Massachusetts
Highway
Department

Assabet River Rail Trail Feasibility Study

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Bridge over the Assabet River, Hudson Center.
Photograph by C. Lewis.

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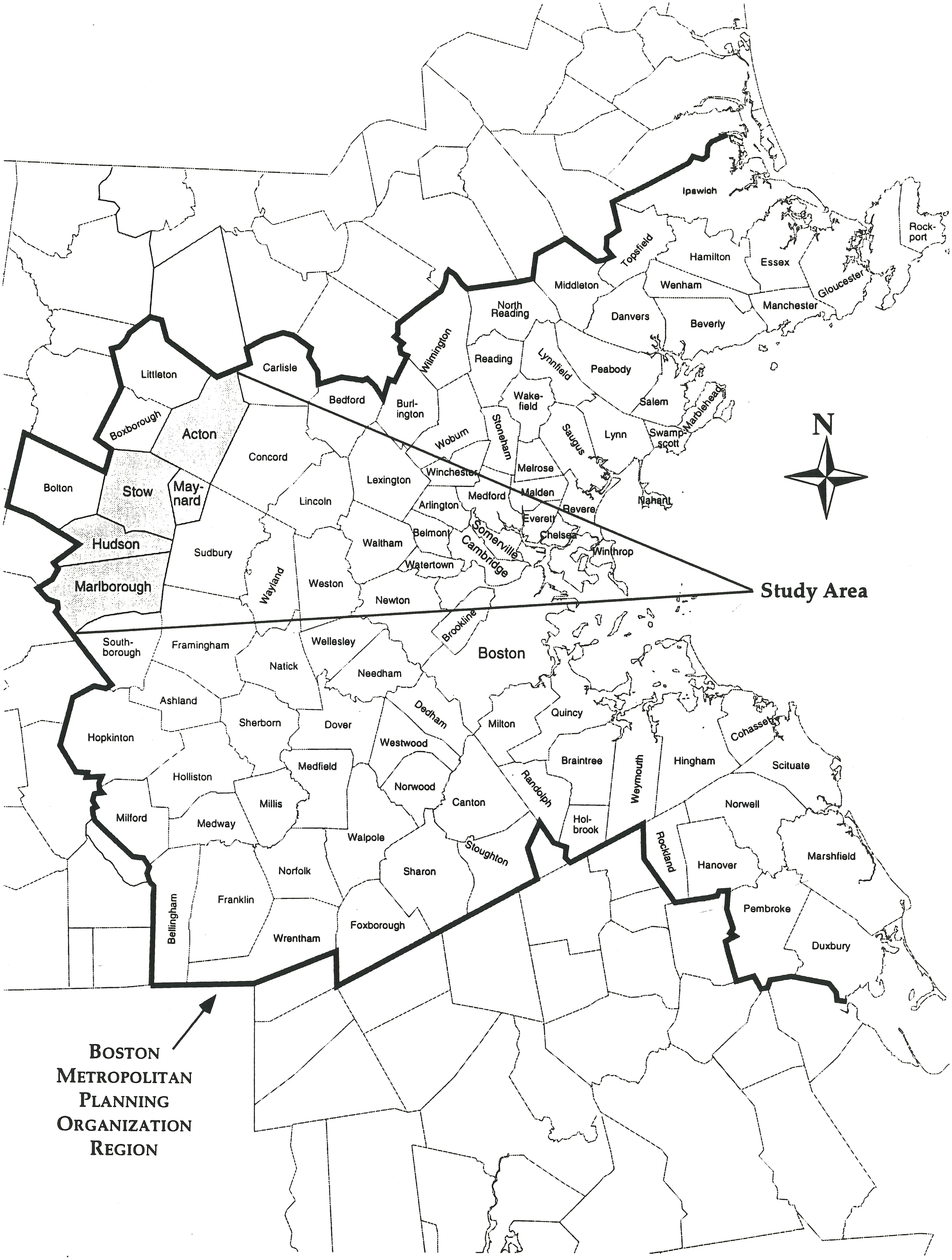
Central Transportation Planning Staff
Directed by the Boston Metropolitan Planning Organization, which is composed of state and regional agencies and authorities, and local governments.

Final Draft – January 1997



Study Area

Boston Metropolitan Planning Organization Region

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Executive Summary

The purpose of this study is to determine if it is feasible to build a trail on the former Marlborough Branch Railroad right-of-way and along the Assabet River between Marlborough and Acton via Hudson, Stow, and Maynard. The finding of the study is that most of the right-of-way is physically intact and would allow for construction of a trail.

The Marlborough Branch is over 12 miles long. The line begins just north of Marlborough Center and ends in Acton, very close to the South Acton commuter rail station on the MBTA's Fitchburg/South Acton Line. Train service, both passenger and freight, began by segments between 1850 and 1855. Service cutbacks began as early as 1939. All passenger service ended in 1958, and the last freight service was in 1973.

A citizens' group called the Assabet River Rail Trail Organization (ARRT) has generated interest in having this line made available as a trail. If constructed, this rail trail would be a major asset for the communities it traverses, as well as surrounding towns. It would provide access to many schools and residential, employment, and recreational areas. It would act as a connector to regional attractors such as Marlborough, Hudson, and Maynard centers and the South Acton MBTA Station.

The line has many owners, some private and some public. The construction of the entire trail would require the support of all five communities as well as the granting of easements by many private owners. It is possible to construct this trail in sections, based on community interest, the acquisition of easements, and physical characteristics of the line. Two sections that would be of benefit are from the Marlborough terminus to Hudson Center and from Maynard Center to the South Acton commuter rail station.

This facility traverses a mix of urban and rural locations. The trail would begin just north of Marlborough Center and would traverse the downtowns of Hudson and Maynard. Between these town and city centers and throughout the stretches in Stow and Acton one finds beautiful vistas of the Assabet River and other open space areas, as well as sections bordering commercial and residential developments.

Introduction

The Assabet River Rail Trail Organization (ARRT) has been promoting the concept of a trail between Marlborough and Acton. The Marlborough Branch Railroad is viewed as a potential corridor that would allow users an off-road alternative in the area. This study, done by the Central Transportation Planning Staff (CTPS) at the behest of the Metropolitan Area Planning Council (MAPC) and under the direction of the Massachusetts Highway Department, determines if this project is feasible. This study was requested by all five communities along the right-of-way.

An advisory committee composed of representatives from communities, agencies, and organizations was formed at the beginning of this study. The participating communities are Marlborough, Hudson, Stow, Maynard, and Acton. Agencies include the Executive Office of Transportation and Construction (EOTC), MAPC, the Bureau of Transportation Planning and Development (BTP&D) of the Massachusetts Highway Department (MassHighway) and the Massachusetts Bay Transportation Authority (MBTA). The following individuals have been appointed to and/or have participated on the advisory committee:

Marlborough	Priscilla Ryder, Mark Geoffrey
Hudson	Jeff Richards, George Mongeau
Stow	Roger Duchesneau
Maynard	Lisa Bailey, Eileen Ludlow
Acton	Martin Graetz
BTP&D	Josh Lehman
MAPC	Joan Blaustein
MBTA	Erik Scheier

Two non profit organizations appointed representatives as well: Dick Lawrence represented the Organization for the Assabet River and Pam Weathers represented the Stow Conservation Trust. Input was also received from citizens attending three public meetings. The first, held on February 7, 1996, at the Stow Public Library, attracted approximately one hundred participants. The second meeting, held on June 5 in Maynard, was attended by about forty citizens. The third informational meeting was held Wednesday, July 24, in Hudson and was attended by about fifty people. Press releases were sent to all regional and local media for all of these meetings. For the first and last meetings, ARRT did a direct mailing to owners and abutters.

Chapter 1 of this report presents background information on the study area, including demographics, travel patterns, public transportation services, and bicycle and pedestrian accident data. Chapter 2 provides information regarding the Marlborough Branch right-of-way, including a physical description, ownership, a history of rail service, and the motor-vehicle volumes on streets that cross the right-of-way. The final chapter makes recommendations.

1 Existing Conditions

The study area is located west of Boston, between Routes 128 (I-95) and I-495 (see Figure 1). It is primarily residential in character, with commercial and industrial areas, primarily in Marlborough and Maynard, and much open space.

A History of the Project

The Assabet River Rail Trail Organization (ARRT) has been working for several years to garner local support for the conversion of this abandoned rail corridor to trail use. Members, who come from all five communities in the study area, have researched ownership of the line, organized cleanups of segments of the right-of-way, and been in contact with the owners and abutters of the line to discuss the potential trail and answer questions. The organization has been in contact with state and local officials and was responsible for garnering the local official support necessary to initiate this study.

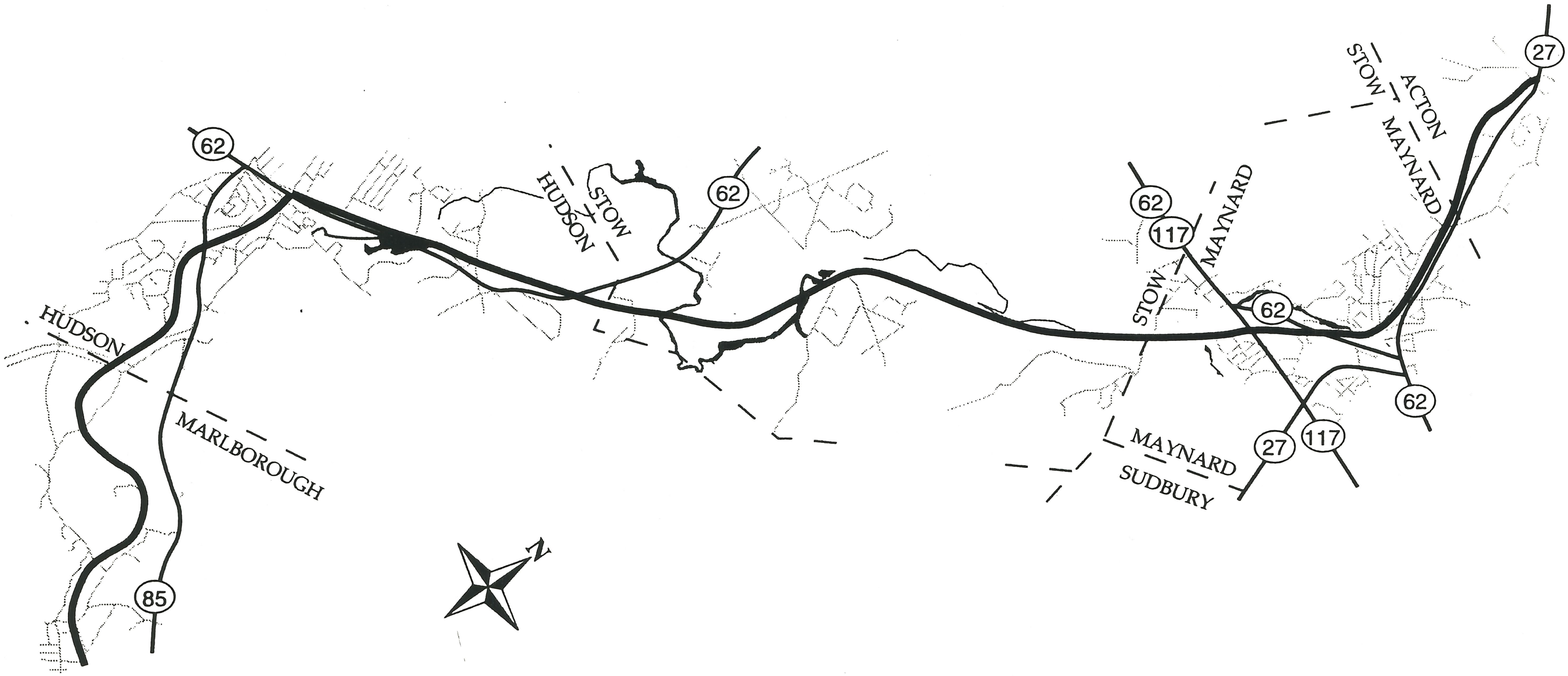
The Marlborough Branch, built in the 1850s, has been used for both freight and passenger service. Service to Boston was provided via connections to the Fitchburg Line in Acton and via the Central Mass. Line in Hudson. The peaks in ridership and service levels were reached in the 1890s. Service reductions began during World War I. Passenger service ended in 1958, freight service in 1973. More details on rail use of the corridor may be found in Chapter 2.

Some sections of the right-of-way are presently used informally as a trail. In some areas rail and ties remain, making walking more difficult. There is also evidence of mountain bike and motorized trail bike use.

B Demographics

Table 1 indicates the population, the land area, and the population density of each study area community. As can be seen, there is a great deal of variation among the communities in terms of population and population density. The population of Marlborough almost equals the combined populations of the next two highest populated towns, Acton and Hudson, each at more than 17,000 residents. Next are Maynard at just over 10,000 and Stow at just over 5,000 people.

FIGURE 1
Study Area/Proposed Corridor



Prepared by: the Central Transportation Planning Staff

TABLE 1
Population, Land Area, and Population Density By Community, 1990

	1990 Population	Land Area (Square Miles)	Population Density
Marlborough	31,813	21.1	1,508
Hudson	17,233	11.5	1,499
Stow	5,328	17.6	303
Maynard	10,325	5.2	1,986
Acton	17,872	20.0	894
Study Area	82,571	75.4	1,095
E. Mass.	4,056,947	2,740.6	1,480

Source: 1990 U.S. Census

The population density in Stow is less than a third of the study area average. Although the population density of Acton is three times that of Stow, it is still significantly lower than the densities of the other three communities. Marlborough and Hudson are very close together in terms of population density, at around 1,500 residents per square mile, and Maynard's density is the highest, at 1,986.

The population density of the study area is about three-quarters of the average for eastern Massachusetts. For comparison purposes, there are seven communities in Massachusetts with population densities over 10,000 people per square mile and three communities with population densities under 10 people per square mile.

Table 2 indicates the modes of transportation that residents in the study area use to get to work. As can be seen, over 80 percent of the resident workers drive alone. About three-quarters of the remainder either use public transportation or carpool. The single-occupant share of 82.8 percent is higher than the eastern Massachusetts average of 69.6 percent. This is not surprising given that public transportation options are limited here compared to the inner metropolitan area.

Four of the communities have a transit/carpool share of about 15 percent. The other community, Acton, has a transit/carpool share of only about 7 percent although it is the only study area community with direct MBTA service.

TABLE 2
Transportation Modes Used to Get to Work By Community, 1990

	Workers, 16+	Drive Alone	Transit, Carpool, Etc.	Bicycle	Walk
Marlborough	17,754	14,664	2,696	25	369
Hudson	9,602	7,956	1,437	18	191
Stow	2,939	2,413	464	8	54
Maynard	5,679	4,633	821	26	199
Acton	10,089	8,500	711	117	761
Total	46,063	38,166	6,129	194	1,574
% of Total	100	82.8	13.3	0.4	3.4
E. Mass.	2,073,508	1,443,252	504,939	8,843	116,474
% of Total	100	69.6	24.4	0.4	5.6

Source: U.S. Census Journey-to-Work data

Table 3 indicates both the number and the percentage of people by community who bicycle and walk to work. The percentage of residents who bicycle to work increases as one goes along the corridor from Marlborough to Acton. The percentages in Marlborough and Hudson are below two-tenths of a percent. In Stow, the bicycle share is about a quarter of a percent. In Maynard, it is almost one-half of a percent, just above the average for eastern Massachusetts. The rate in Acton is by far the highest for the study area, over one percent. For comparison, the highest percentages within eastern Massachusetts are found in Cambridge (2.9), Somerville (2.0), and Brookline (1.8).

About eight residents walk to work for each one bicycling. The range is between the low of 1.84 percent in Stow and the high of 7.54 percent in Acton. Marlborough and Hudson have about 2 percent and Maynard, at 3.5 percent, is close to the study area average.

These percentages are estimates based on a questionnaire distributed by the U.S. Census to workers over 16 years of age. All students, including those over 16, are excluded. These data are collected in early spring (March), when, according to metropolitan Boston counts, bicycle volumes are about one-quarter of the peak-season volumes. (It is not known what the seasonal variations are for pedestrians, but pedestrian volumes are probably less variable than bicycle volumes.)

TABLE 3
Number and Percentage Bicycling and Walking to Work By Community, 1990

	Bicycling		Walking	
	#	%	#	%
Marlborough	25	0.14	369	2.08
Hudson	18	0.19	191	1.99
Stow	8	0.27	54	1.84
Maynard	26	0.46	199	3.50
Acton	117	1.16	761	7.54
Total	194	0.42	1,574	3.42
E. Mass.	8,843	0.43	116,474	5.62

Source: U.S. Census Journey-to-Work data

Another factor to consider is that the census questionnaire asks for the mode used for the longest part of the trip to work. A trip involving a two-mile bicycle trip to a rail station, a five-mile train trip, and a half-mile walk to the office would be classified as a rail trip. Use of bicycles to reach the commuter rail station in Acton, therefore, would not be reflected in the census data unless the bicycle trip were longer than the rail trip.

C Public Transportation

Rail transportation in the study area is provided by the MBTA via the Fitchburg/South Acton commuter rail line. The one station in the study area is in South Acton, located at the terminus of the Marlborough Branch.

Bicycles are allowed during off-peak hours on all commuter rail lines, provided the bicyclist has obtained a bicycle permit from the MBTA. This permit allows bicycle access on all inbound trains after the morning peak and on all outbound trains except during the evening peak. Inbound to Boston, bicyclists are allowed on all trains beginning with the 9:25 AM out of South Acton. Outbound, bicyclists may board all the trains up through the 3:00 PM out of North Station, and then all trains in the evening beginning with the 7:35 PM. This means bicyclists may board 11 of the 16 inbound trains and 11 of the 16 outbound trains daily. On Saturdays, bicyclists may board all 8 inbound and outbound trains and on Sundays all 7 inbound and outbound trains.

For many, the bicycle can be used to reach transit stations. It is faster than walking, allowing people who live farther away a non motorized option. The town of

Acton installed twenty bicycle lockers at the South Acton commuter rail station in May 1996. The town is making the lockers available free of charge for the first year (requiring a $50 returnable key deposit) to encourage interest and use. All of the lockers have been taken.

There is very limited private bus service in the study area. Gulbankien provides three round-trips a day from Hudson and Marlborough to Framingham and the Mass. Turnpike into Boston. Only one of these trips is during commuting hours. Cavalier Coach provides one commuter trip a day that starts in Northborough and proceeds along Route 20 to Route 128. then taking the Mass. Turnpike into Boston. The Gulbankien service is totally private; the Cavalier service is subsidized by the MBTA. These bus carriers will transport bicycles, stored in the baggage compartment, at no charge.

D Accident Data

The accident data discussed in this report were obtained from MassHighway, which in turn obtained the data from the Massachusetts Registry of Motor Vehicles. These 1988 through 1991 data are the most recent that have bicycle and pedestrian accidents sorted separately. The data are limited. First, for many of the reported accidents there is not complete information, especially regarding location. Second, many accidents are not reported, especially bicycle accidents that involve falls but do not involve a crash with a motor vehicle.

Table 4 shows the number of bicycle and pedestrian accidents by community and the rate per ten thousand residents. All of these accidents involved crashes with a motor vehicle.

TABLE 4
Number of Bicycle and Pedestrian Accidents, 1988-1991, and Annual Rate per Ten Thousand Residents by Community

	Population	# Bicycle Accidents	Bicycle Accidents per 10,000	# Pedestrian Accidents	Pedestrian Accidents per 10,000	Fatalities	
						Bicycle	Pedestrian
Marlborough	31,813	36	2.8	46	3.6	1	0
Hudson	17,233	35	5.1	20	2.9	1	2
Stow	5,328	9	4.2	2	0.9	2	0
Maynard	10,325	18	4.4	8	1.9	0	0
Acton	17,872	19	2.7	16	2.2	0	1
Study Area	82,571	117	3.5	92	2.8	4	3
E. Mass.	6,016,425	5,761	3.2	10,632	5.9	34	376

Sources: 1990 U.S. Census (population); Mass. Registry of Motor Vehicles (accidents). The Massachusetts data are for the period 1989-1991.

The largest number of bicycle accidents occur in Marlborough. Accounting for population, however, the highest rate of bicycle accidents occurs in Hudson. Hudson, Maynard, and Stow have bicycle accident rates above the state average. Marlborough and Acton are slightly below the state average. Stow had the fewest number of bicycle accidents, but with a population about a sixth of that of Marlborough, the rate was 50 percent higher.

There were 117 bicycle accidents and 92 pedestrian accidents in the study area during the four-year period. Statewide, there are almost twice as many pedestrian as bicycle accidents. The rate of bicycle accidents in the study area is slightly higher than the rate in the entire state (3.5 versus 3.2 bicycle accidents per ten thousand residents per year). The rate for pedestrian accidents in the study area is less than half the statewide average (2.8 versus 5.9 pedestrian accidents per ten thousand residents per year). It is not clear why these differences exist. The only source available for estimating walking and bicycling trips is the journey-to-work data. These data (see Table 3) do suggest that use of the bicycling mode is average in this area compared to eastern Massachusetts and use of the walking mode is low. It must be remembered, however, that the journey-to-work data are confined to employment-related travel.

The largest number and the highest rate of pedestrian accidents occurred in Marlborough, where there are almost three pedestrian accidents for each bicycle accident. The next highest number as well as rate of pedestrian accidents occurs in Hudson, where there are equal numbers of pedestrian and bicycle accidents. Next highest in both the number and rate of pedestrian accidents is Acton, followed by Maynard and then Stow.

The study area's overall annual rate of pedestrian accidents (2.8 per ten thousand residents) is well below the statewide average of 5.9. Even Marlborough, with the highest rate in the study area, is below the state average. The study area average for bicycle accidents (3.5 per ten thousand residents) is close to the statewide average of 3.2. During the period 1988-1991, there were four bicycle fatalities and three pedestrian fatalities in the study area.

Why do certain communities have higher rates of accidents than others? Possible explanations are higher levels of motor-vehicle traffic and higher levels of walking and bicycling. "Exposure rates," rates that take these volumes into account and indicate the number of accidents per given level of traffic, are not determined for this study. If available, they would highlight areas that have particularly high numbers of accidents due to factors other than simply high levels of traffic. These other factors can include, but are not limited to, excessive speed, disregard of traffic signals, lack of space for pedestrians and bicyclists, and poor sight distance (distance at which a point in the road can be viewed by oncoming motorists).

To determine specific areas where accidents were concentrated, the accidents for the years 1988 through 1991 were mapped. The reader is reminded that many accidents are not shown on the maps because insufficient information was provided in the accident report regarding location. In general, about half of the accidents are mapped; insufficient information is provided to map the other half.

In some cases, no accident concentrations will be seen. In other cases, specific intersections or roads will be seen to be the location of many accidents. Again, the location of accidents may be a reflection of volumes of pedestrian and bicycle traffic as well as of hazardous conditions. That is, the accidents may be occurring where the most activity is occurring. An intersection with a large number of accidents may be as safe from a traffic design point of view as another with no accidents: one is a location where many bicyclists and pedestrians travel; the other is one where little such traffic occurs.

It is important to study locations with high numbers of accidents to determine whether there are design issues that need to be addressed. Additional measures need to be taken to reduce the number of accidents, and it is important to determine what types of measures–special signage, targeted police enforcement, traffic control, design changes–would be most effective. Likewise, the lack of accidents cannot be taken as a measure of safety. It is most appropriate for these types of analysis to be performed by a local bicycle committee and local staff.

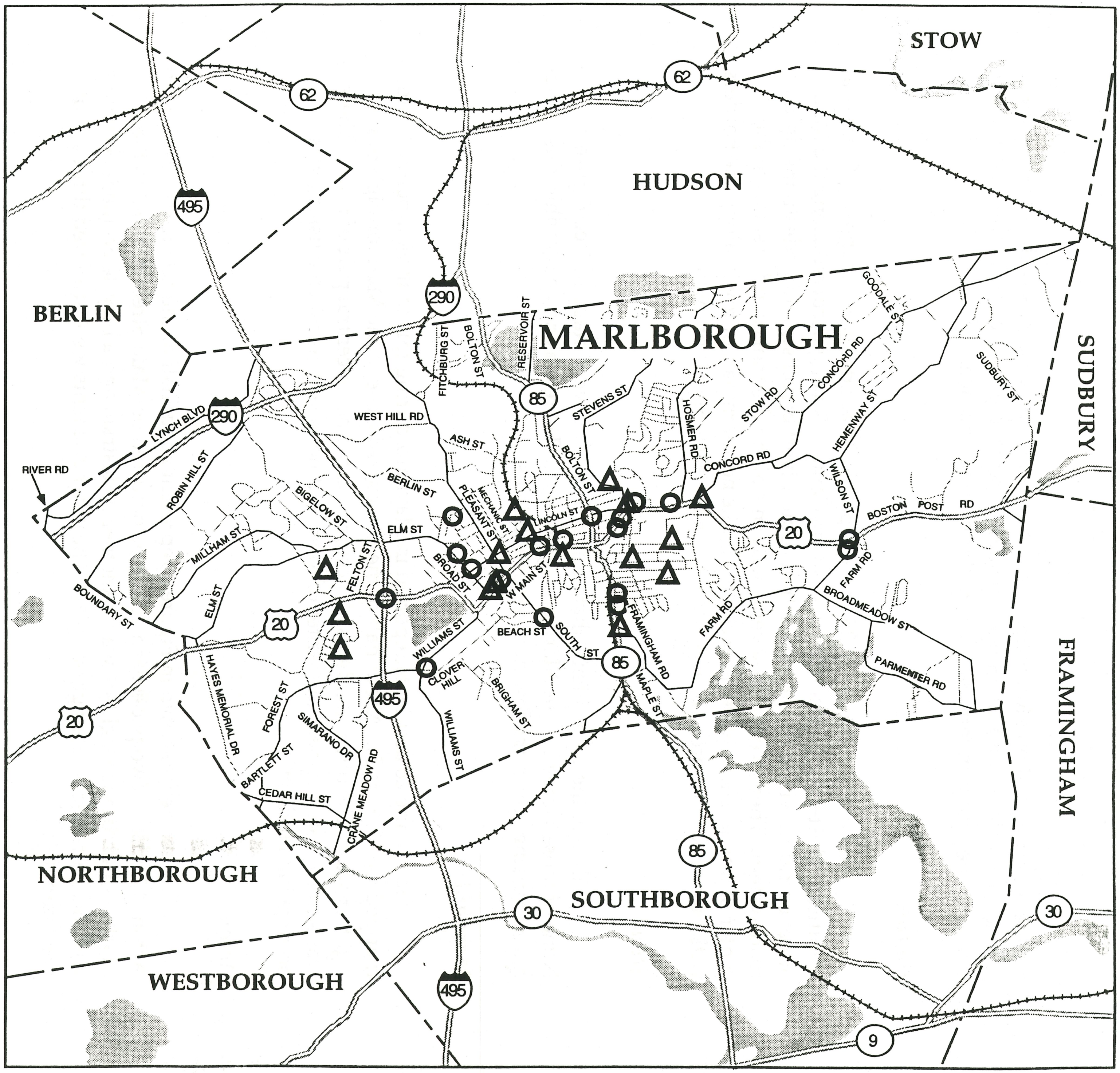
There are arterials in the study area, such as Route 20, that have high levels of commercial activity, might have parking on both sides of the street, and have high volumes of traffic. People driving on this type of road often become distracted, looking for stores or parking spaces. Also, the parked cars become obstructions that decrease the sight distance for vehicles entering the road from side streets, parking lots, or driveways. Both the distracted drivers and the limited sight distances pose hazards for pedestrians and bicyclists. The pedestrians are coming out from behind the parked cars to cross the street. The bicyclists are further to the right on the roadway than the motorists and more likely to be blocked visually by the parked vehicles. This and the tendency of people to open their car doors without checking behind them are two important reasons for bicyclists to give a wide berth to parked vehicles.

Figures 2 through 6 show accident locations by community for 1988-1991. The Marlborough Branch is indicated on these maps by a dashed line.

Marlborough

Figure 2 shows bicycle and pedestrian accidents in Marlborough. Of the 65 reported accidents, 33 were mapped. Almost all of the accidents occurred in the more densely developed central part of the city. Only 2 accidents occurred east of this area, none were north, and 5 were west. The 3 accidents that occurred south of the central

FIGURE 2
Location of Collisions of Motor Vehicles with Bicyclists and Pedestrians Marlborough, 1988-1991



business area were along Route 85. A fair number of the accidents in the center of the city occurred along the Main Street corridor. There were 5 accidents within several blocks of the southern terminus of the Marlborough Branch.

Hudson

In Hudson (see Figure 3), 25 of the reported 55 accidents are mapped. There is a significant clustering of accidents in Hudson Center. Several occurred along the Main Street corridor, where the proposed trail could divert bicyclists and pedestrians off the road system. There were also several accidents along the trail corridor south of the center of town. There were no accidents in the northern part of town, along the borders with Stow and Boxborough, and very few in the eastern part of town.

Stow

Only 3 of the 10 accidents that occurred in Stow were mapped (see Figure 4). None of those were near the Marlborough Branch. There was no geographic clustering–not surprising, given the low number of accidents.

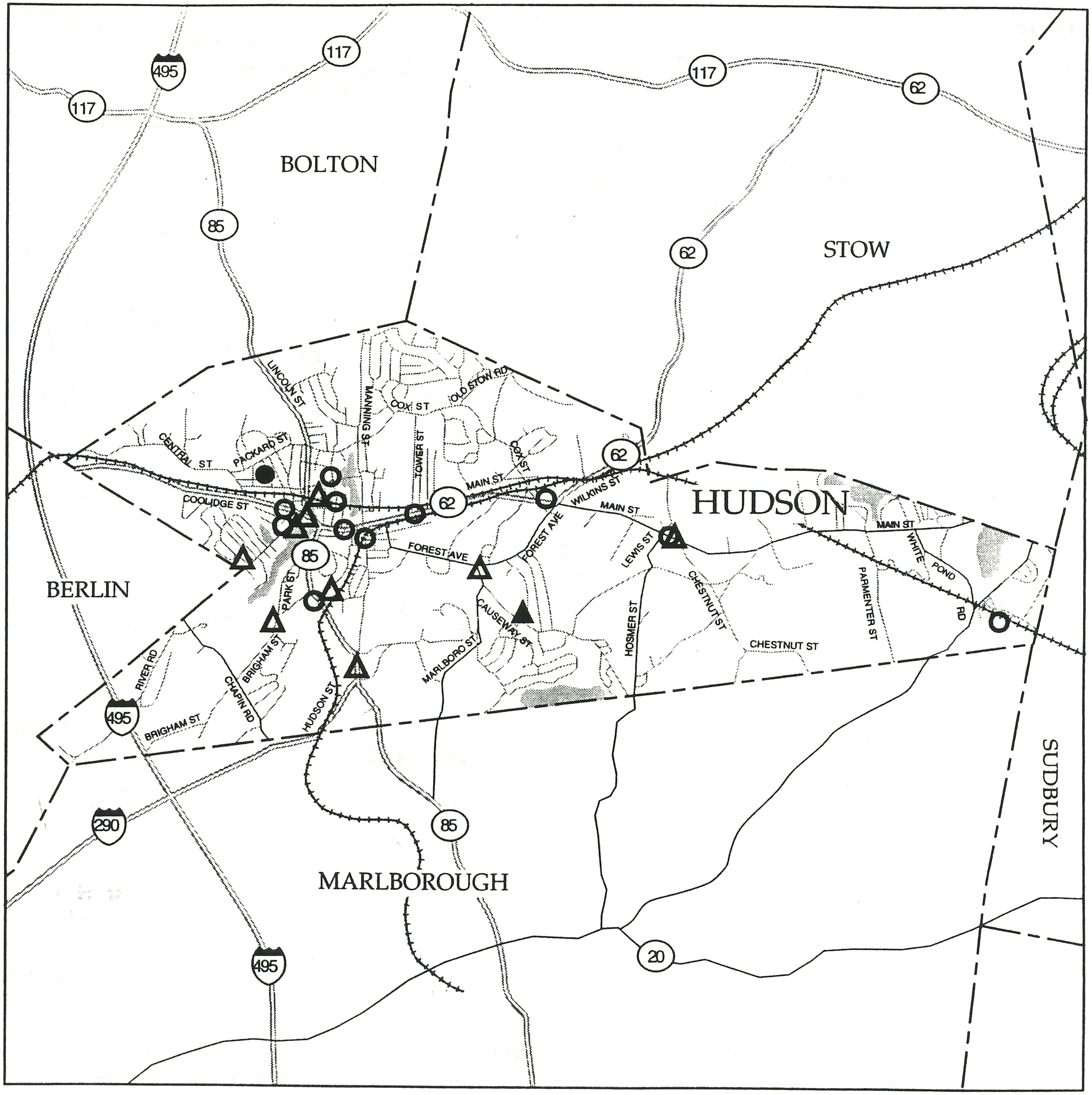
Maynard

Half of the 26 accidents reported in Maynard during this four-year period were mapped (see Figure 5). About half of these occurred close to the Marlborough Branch right-of-way. The other accidents all occurred in the north central part of town. There was some clustering near the center of town, but not nearly as much clustering as occurred in Hudson.

Acton

The accidents shown in Figure 6 represent about half of the accidents recorded in Acton (17 of 35). Two pedestrian accidents occurred on Main Street parallel to the Marlborough Branch right-of-way. Another pedestrian and a bicycle accident occurred within a half-mile of the right-of-way. The other accidents were scattered throughout the community.

FIGURE 3
Location of Collisions of Motor Vehicles with Bicyclists and Pedestrians Hudson, 1988-1991

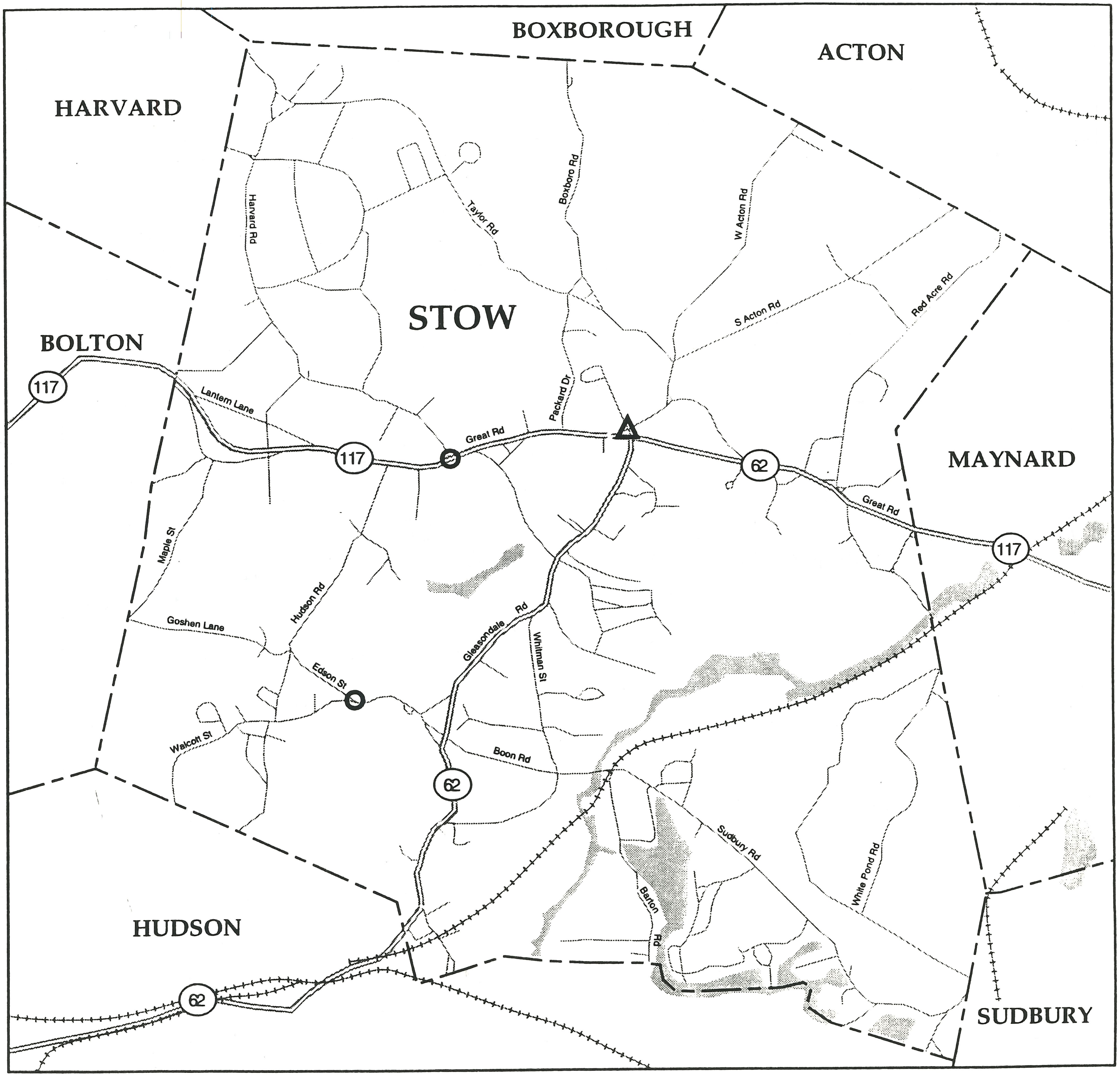


LEGEND

- ○ Bicycle Accident
- ● Bicycle Fatality
- △ Pedestrian Accident
- ▲ Pedestrian Fatality

Source: Registry of Motor Vehicles data, processed by Massachusetts Highway Department

FIGURE 4
Location of Collisions
of Motor Vehicles
with
Bicyclists and Pedestrians
Stow, 1988-1991



LEGEND

- ○ Bicycle Accident
- ● Bicycle Fatality
- △ Pedestrian Accident
- ▲ Pedestrian Fatality

FIGURE 5
Location of Collisions
of Motor Vehicles
with
Bicyclists and Pedestrians
Maynard, 1988-1991

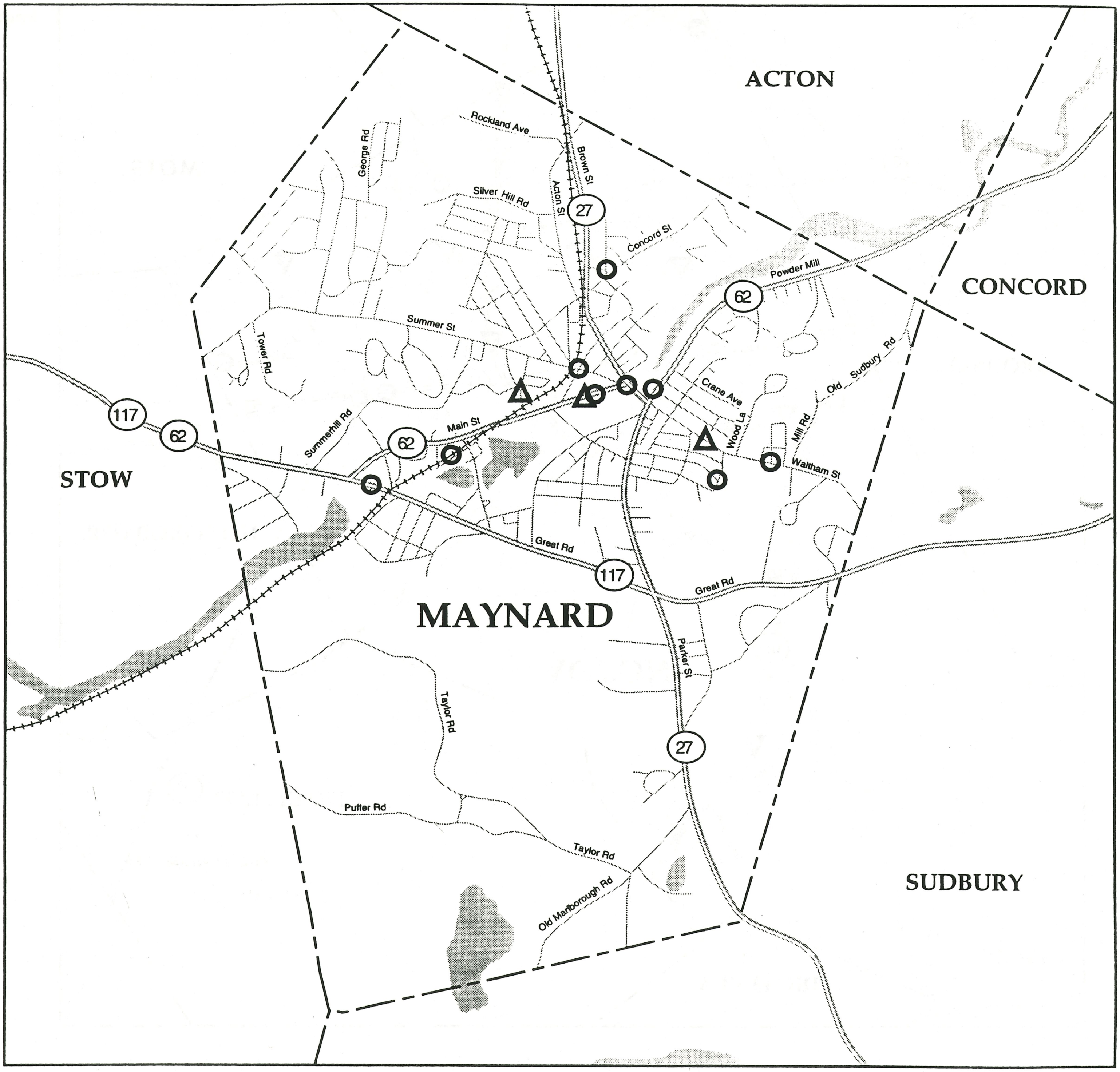
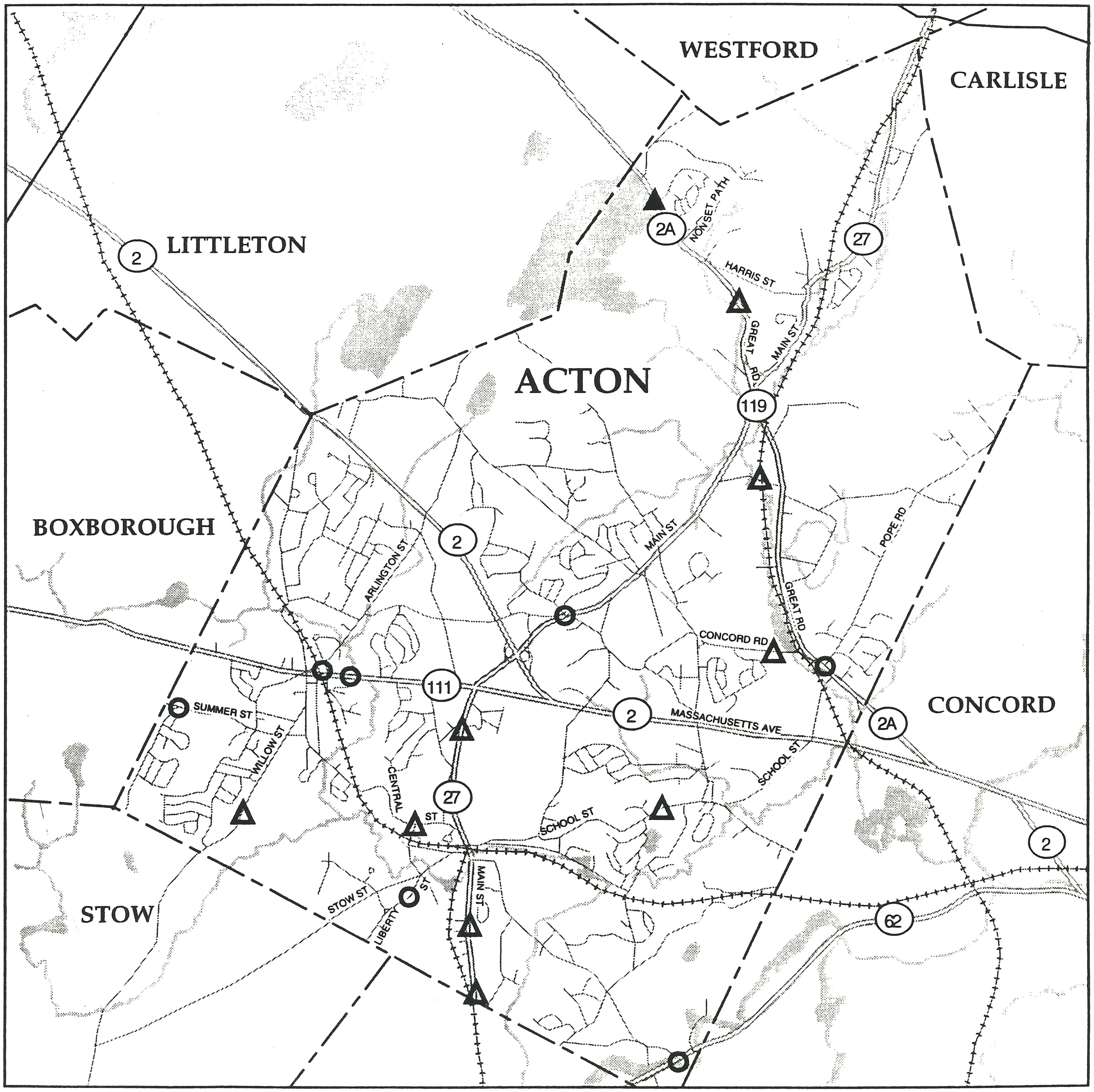


FIGURE 6
Location of Collisions of Motor Vehicles with Bicyclists and Pedestrians
Acton, 1988-1991



LEGEND

- ○ Bicycle Accident
- ● Bicycle Fatality
- △ Pedestrian Accident
- ▲ Pedestrian Fatality

Source: Registry of Motor Vehicles data, processed by Massachusetts Highway Department

2 The Rail Trail Proposal

The Marlborough Branch is over 12 miles long, from its junction with the main line in Acton to its terminus near Marlborough Center. It was originally single-track along most of the right-of-way. (Some short sections are double-track, however). Both passenger and freight service were provided.

A History of Rail Service

The Marlborough Branch, originally part of the Fitchburg Railroad, opened between South Acton and Hudson in 1850. The section from Hudson to Marlborough was opened in 1855 by the Marlborough Branch Railroad. Both freight and passenger service were run on the line.

Passenger service on the line was never very successful, partially due to low demand from the area into Boston and partially due to the roundabout route. A Marlborough-to-Boston trip via South Acton was over 35 miles long, 9 miles longer than a competing Marlborough-to-Boston trip via Framingham. The all-time peak for ridership on the Marlborough–South Acton–Boston service was in the 1890's.

A second line through Hudson to Boston was opened in 1881 by the Massachusetts Central Railroad and completed to Northampton in 1887. The Central Mass. crossed the Marlborough Branch on a bridge 2 miles east of downtown Hudson. In 1902 the Boston & Maine (they bought the Central Mass. that year and the Marlborough Branch 15 years later) built a connecting track between the Central Mass. and the Marlborough Branch. Passenger service was then provided from Marlborough via this connection, eliminating 6.3 miles needed to go via South Acton. Even so, the Marlborough-Framingham-Boston trip was 2.7 miles shorter.

In the early 1900s there were up to twelve round-trips a day from Marlborough to Boston, eight via the Central Mass. and four via South Acton. There were also several Maynard–to–South Acton trips. Overall service reductions followed, and during World War I there were major cutbacks on lightly used lines to conserve resources. Marlborough service was reduced to five round-trips. Service stayed at this level until 1932, when service was reduced to one round-trip daily from Marlborough to Boston via the Central Mass.; service to Boston via South Acton was a single round-trip, starting in Maynard.

The Marlborough–Central Mass. service was discontinued in 1939. The segment from Maynard to the Central Mass., which includes the section in Stow, was abandoned in 1943, and the bridge connecting the two lines was filled in. The single round-trip from Maynard to Boston via South Acton was discontinued in 1958, the same year service on the Central Mass. was cut back from Berlin to Hudson. In 1965, service was cut back to South Sudbury on the Central Mass. Line.

Freight service continued between Marlborough and the Central Mass. until 1973, when it was discontinued due to low demand and poor track condition. Freight service between South Acton and Maynard ended about the same time for similar reasons. A short segment of track in South Acton was used for layover of commuter trains until the late 1970s. The Maynard–South Acton segment was abandoned in 1979. This segment and the Hudson-Marlborough segment were sold to the MBTA by the B&M in 1976.

B Physical Description of the Right-of-Way

This description of the right-of-way is based on field work done early in the spring of 1996. It should be kept in mind that early spring is one of the wetter times of year.

Marlborough

The Marlborough Railroad right-of-way begins in Marlborough just north of the center of the city. The first segment is very overgrown. A significant amount of dumping has occurred there through the years. There are some short segments with standing water. There is private use of the right-of-way near Ash Street. In the vicinity of Fitchburg Street, there is a great deal of water adjacent to the right-of-way. The right-of-way in places had tracks and ties, and in other places is clear of them. Between Fitchburg Street and the I-290 connector, parts of the right-of-way are again under water; there are no tracks or ties.

Hudson

The first portion of the right-of-way north of the I-290 connector is raised on an embankment and in good shape. There is one overhead bridge that carried another rail right-of-way over the Marlborough Branch at one time. The right-of-way then passes behind a shopping center. New houses are visible on the left, although the closest ones are about fifty yards away. When this observation was made, the trees were beginning to fill. The view off the trail would be much more restricted in the summer and early fall and less restricted in the winter. Several sections in this area have been washed out by water coming down from the east side. The right-of-way passes under power lines before reaching Route 85.

The sight distance at the Route 85 crossing is very good. This is the first busy crossing of the right-of-way (not including I-290). There is no traffic control of any kind. Across Route 85, the right-of-way is very overgrown and passes near homes on the north (west) side. The right-of-way becomes somewhat passable further toward Hudson Center, although remaining quite overgrown. The height of the embankment begins growing and continues to do so to the crossing of the Assabet River. This bridge is fairly high and affords a wonderful view of Hudson Center. If the trail is constructed, the fencing added to this bridge ought to be built so as to maintain the excellent view.

The right-of-way crosses Broad Street and is used as a service road for motor vehicles just south of Main Street (Route 62) for a distance of about one-half mile (Vila do Porto Boulevard). The right-of-way then continues just south of Main Street, crossing the Assabet River (bridge intact) just before crossing to the north side of Main Street. The track, now between a business parking lot and Main Street is relatively open and then becomes fairly overgrown. The right-of-way then crosses Cox Street. The section between Cox Street and the next crossing of Route 62 is fairly passable. The Central Mass. Line is now just north of the Marlborough Branch, and vertically above it in this stretch.

The two rail lines cross just before Route 62. The railroad bridge over Route 62 is gone. After Route 62, the Central Mass. Line continues east to Chestnut Street. After crossing the Central Mass. Line, the Marlborough Branch parallels Route 62 and traverses a wooded area where no physical trace of the line can be found (this is the section that has been abandoned since 1943). From maps, it appears the line would cross the entrance driveway to a gun and rod club in the vicinity. The right-of-way then crosses to the east side of Route 62.

Stow

After crossing Route 62, the right-of-way traverses a wooded area and ends up at Chestnut Street in Stow, near Railroad Street, north of the Central Mass. crossing. It runs parallel to Railroad Street, a little to the east, but again little physical evidence remains until one reaches the Assabet River. There, remains of the railroad bridge embankment can be discerned.

The next road intersection that the Marlborough Branch crosses is Sudbury Road. No attempt was made to follow it from the river to that crossing, as there are no public access roads to use. From Sudbury Road, one can go back in a southwesterly direction for some distance along a hard-surfaced dirt road which is the locus of the right-of-way.

There are no tracks or ties. On the other side of Sudbury Road, one can proceed northeasterly along the same type of road. There is a gate to keep out motor vehicles.

The right-of-way then connects to Crow Island, which is privately owned. The owner allows community soccer games on the property. (Automobile access is allowed from the eastern direction at White Pond Road.) South of the line is a U.S. military reservation, the Fort Devens Annex, which is being turned over to the U.S. Fish and Wildlife Service in 1997.

Maynard

The right-of-way then crosses White Pond Road and proceeds on an embankment along the Assabet River. This is one of the most scenic portions of the trail. The actual railroad right-of-way heads south of the walking trail. At one point along the trail here, one can look south and see the old railroad bridge spanning an inlet of the Assabet. The actual right-of-way is on private property before entering the Maynard Department of Public Works yard. The walking trail continues on and ends at Winter Street. Winter Street is quiet and would do as a route connection within the bikeway. One can again see the old rail right-of-way before reaching Winter Street, as there is another railroad bridge crossing the Mill Pond Canal. That bridge crossing has been barricaded and posted. After crossing the canal, the rail right-of-way then heads across private property.

The right-of-way then crosses Great Road (Route 117). The sight distance is good. The right-of-way continues on the other side. The first portion is very overgrown and some dumping has occurred. After that the right-of-way is fairly passable. For the first 50 yards or so there are walking trails along both sides of the right-of-way. There are some homes located on the west side, most of which are separated from the trail by distance or vegetation. The houses on the east side are separated from the right-of-way by High Street. The right-of-way enters private property near Sudbury Street, so the trail might have to detour onto High Street.

The trail would then have to cross Sudbury Street and then Main Street (Route 62) to reach the portion of the trail in Maynard Center. One possibility for this area would be to keep the trail on the south side and try to gain an easement through the parking lot of the large mill building located there. The Main Street crossing could occur where the present pedestrian crosswalk is located, near Railroad Street. The right-of-way itself crosses here at a very oblique angle; using it would require a very long crosswalk, which is not recommended.

On the other side of Main Street, the right-of-way is located between Railroad Street and commercial development fronting on Main Street. The best solution here might be to use Railroad Street itself, as the right-of-way is very constricted and would put the trail very close to neighboring homes and businesses. The right-of-way then crosses Florida Road and enters the parking lot behind the post office, crosses the Assabet River on a pedestrian bridge, and enters the parking lot behind the stores in Maynard Center. It appears that room could be found for the trail behind the post office without compromising the parking situation there. The pedestrian bridge is fairly narrow and would need to be widened. It appears that the abutments there would allow this. It is also probable that the trail could be put between the parked cars and the outer edge of the lot in Maynard Center to eliminate conflicts with motor vehicles.

There is a park just west of the pedestrian bridge over the Assabet that would change in character during times when the trail was heavily used. The park is presently passive, with a few benches. Hundreds of trail users would pass through where only a handful are found today. If it was deemed desirable, the trail could be put at the edge of the park to retain some of the present atmosphere.

Going past the Maynard Center shopping area, the right-of-way crosses Summer Street and passes between Maple and Mason streets. It goes directly into Maplebrook Park and then between houses that face the two parallel streets. It crosses Acton and Concord streets and proceeds north between Acton Street and Route 27 (Brown Street). The section of the right-of-way just west of Route 27 and south of the Acton/Conant Street crossing is under water and impassable.

Acton

The Acton town line is just beyond Acton Street. The right-of-way here is fairly open and easy to traverse until it reaches a privately-owned section, where a building and accompanying parking lot have been constructed. A trail would most likely skirt this lot on the west side to minimize traffic conflicts. The right-of-way then enters the woods again and one comes to one of the most scenic areas, with water on both sides, as occurs in the Crow Island area. There is a bridge over the river close to the Acton terminus of the right-of-way. The right-of-way ends in the vicinity of the South Acton commuter rail station. A construction project on Route 27 will result in that bridge over the main line track to Boston being filled, only allowing train access. This will eliminate the possibility of trail users reaching the east side of Route 27 this way. To reach the station, people could either cross the tracks there at grade or cross at-grade further west; alternatively, a pedestrian underpass could be considered.

C Trail Dimensions

The preferred trail width is 12 feet.[1] Providing clearances of three feet on each side of the path adds 6 more feet. The total width requirement is then 18 feet for the trail and its clearances. (See Figure 7.)

FIGURE 7

Preferred Cross Section

3' 12' 3'

<———><————————————><———>

clearance trail clearance

Actual Width of Right-of-Way

In general, the width of a railroad right-of-way varies considerably. The width is usually ascertained by looking at "Val plans," which are plans provided by the railroad and named for the railroad valuation engineers who use them. Only portions of the Val plans for the Marlborough Branch were obtainable, so the width discussion is based partially on measurements taken from assessors' maps.

Overall, the width varies from 10 to 145 feet. Almost the entire right-of-way is at least 30 feet wide. The right-of-way at the Marlborough end starts at 50 feet and widens to 80 feet, then 90 feet, then goes down to 65 feet. There is a wide section of 125 feet just southeast of the landfill. The right-of-way is 85 feet along the landfill, widens to a section that is 110 feet, then narrows to 90 and then 80 feet at the Hudson line. From there to the intersection with Route 85, the right-of-way varies between 70 and 120 feet. Just past Route 85, there is a short section that is 30 feet wide, then it widens to 70 feet and then 115 feet as it crosses the Assabet River. The right-of-way soon narrows to 40 and then 35 feet before the 85-foot section that is being used for Vila do Porto Boulevard. An 80-foot width continues into Stow.

The width of the right-of-way is something of a moot point in Stow, as it is privately owned. That is, use of the right-of-way in Stow would require an easement from the various owners. The width of the easement would be negotiated and could include all or a portion of the former railroad right-of-way or even property off the right-of-way that was more suitable either from the point of view of the owner or for the sake of a better trail. For the record, the former right-of-way width varied between 35 and 100 feet in Stow.

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[1] Standard of the American Association of State Highway and Transportation Officials (AASHTO).

In Maynard, the right-of-way to Sudbury Street varies from 60 to 85 feet. Between Sudbury and Summer streets, the right-of-way is between 35 and 55 feet. The Summer Street–to–Acton Street section is 60 to 80 feet wide. From Concord Street to the Acton line, the width is 45 to 65 feet. The minimum width in Acton is 50 feet, with most of the right-of-way in that town being between 50 and 70 feet wide. There is a short section just south of the end of the line that is 145 feet wide. Portions of the right-of-way in Maynard and Acton are privately owned.

Different Trail Configurations

A 12-foot trail width allows many different types of users to be on a trail. At times of minimal or moderate use, there are many opportunities for bicyclists and in-line skaters to pass slower users. On more urban trails, such as the Dr. Paul Dudley White Path along the Charles River and the Minuteman Commuter Bikeway, especially from Lexington Center through Arlington, the peak use periods are so crowded as to make passing difficult. It is not expected that an Assabet trail would have as much use as these other trails, although there are likely to be large seasonal and daily variations.

A wider trail would provide more room for passing and more room for alternative methods of travel. A trail width greater than 12 feet could seem too large, however, given the bucolic setting. An alternative to one wider trail is to provide separate trails for different users. If the right-of-way is wide enough, if the community is interested, and if sufficient funds are available, then a trail could be provided for bicyclists and in-line skaters–those traveling faster–and a separate trail for users such as walkers, those in wheelchairs, and those pushing baby carriages.

Most of the length of the railroad right-of-way is clearly wide enough for multiple paths. A 12-foot bicycle/skating path with 3-foot clearances and an 8-foot walking path with an additional 3-foot clearance would require a total width of 29 feet. The two major issues that must be addressed are the significant cost increase associated with a double path and the visual effect of a double path. In sections that are well over 29 feet, the two paths could be visually separated by vegetation, if that were deemed desirable.

There are likely to be significant differences of opinion on this issue. Many people, for example, would even find a 12-foot, single path too imposing for what they consider to be a scenic, unspoiled setting (although the right-of-way at one time had trains on it). Others, either bicyclists and in-line skaters wanting to go fast or pedestrians wanting a slower-paced trail, would opt for separate facilities. Joggers might want a jogging trail, which would have a softer surface. Interest also was expressed in an equestrian trail, which also would be unpaved. The configuration issue is described here in response to questions raised at public meetings. The decisions regarding these questions would be made during the preliminary design phase.

D At-Grade Crossings

One of the benefits of using a trail compared to sharing streets is that it diminishes the potential for conflicts between users and motor vehicles. The Minuteman Bikeway, for example, is an 11-mile trail with 17 at-grade intersections. A bicyclist on the parallel street system would need to negotiate about one hundred intersections to make the equivalent trip. Using the Minuteman, therefore, decreases a bicyclist's exposure to motor vehicles at intersections by a factor of six.

Table 5 is a comparison of the number of at-grade intersections per mile on the major Massachusetts rail trails and on the proposed Assabet Trail. The Norwottuck Trail is in the Amherst area. The Cape Cod Rail Trail runs between Dennis and Wellfleet.

TABLE 5
Comparison of Rate of Occurrence of At-Grade Intersections on Marlborough Branch and on Major Massachusetts Rail Trails

	Length (mi)	At-Grade Intersections	Bridges	Miles per At-Grade Crossing
Cape Cod Rail Trail	25.0	25	4	1.0
Minuteman	11.0	17	5	0.6
Norwottuck	8.0	8	4	1.0
Marlborough Branch	12.4	22	5	0.6

The Marlborough Branch is 12.4 miles long and has 22 at-grade intersections. This means that, on average, a user would have to negotiate an at-grade intersection every 0.6 miles. This rate of at-grade intersections is significantly higher than the rates on the Cape Cod and Norwottuck trails and equal to that of the Minuteman path. This is not surprising, given the more rural character of the Cape Cod and Norwottuck trails.

An example of another type of trail is the Dr. Paul Dudley White Path along the Charles River. The intersections are at the bridge crossings, which are fairly infrequent, given the expense of bridges. The Dr. Paul Dudley White Path is about 20 miles long (10 miles on each side of the river) and has 17 intersections, or 1.2 miles of path per at-grade crossing.

The intersection crossings are a concern because trail users and motor vehicles come together at these points. The right-of-way oftentimes crosses streets at mid block, which is an unexpected point of entry. Up until the time of crossing, trail users would not have been visible to the motorists, because the trail and walkway are on separated corridors. If the trail were parallel to the road, the motorists and trail users would have a longer time to react to each other. The overall concern about intersection safety and design is underlined by the fact that most bicycle–motor vehicle crashes occur at intersections.

The number and rate per mile of intersections along the Marlborough Branch vary significantly by community. Table 6 indicates these variations.

TABLE 6

Number of At-Grade Intersections, Number per Mile, by Community

	# At-Grade Intersections	**# Miles**	**# per Mile**
Marlborough	4	2.2	1.8
Hudson	8	3.7	2.2
Stow	2	3.3	0.6
Maynard	9	2.0	4.5
Acton	1	1.2	0.8
Total	22	12.4	1.7

The density of intersections is lowest in Stow and Acton. These two communities have the lowest population densities in the study area (see Table 1) and consequently a lower density of roads. The higher population densities of the other three communities help explain their higher rates. Also, the right-of-way goes through the downtown areas of Hudson and Maynard. Although the number of intersections in Hudson and Maynard are about the same, the right-of-way traverses a much shorter distance in Maynard, resulting in a higher number of intersections per mile. In both Acton and Stow the right-of-way traverses a rural area, away from the center of each town.

There are many factors that determine the level of safety of trail/street crossings, including traffic volumes, sight distance and reaction time, speed of traffic, gaps in traffic, and width of the intersection. Very low traffic volumes mean there may be plenty of opportunities for trail users to cross when no motor vehicles are present. At the other extreme, if traffic is so high in volume as to be congested, motorists who are already stopped might be quite amenable to allowing trail users to cross in front of them.

Sight distance is how far away the oncoming motorist (or the trail user) is before the intersection is sighted. Reaction time is clearly related to the sight distance available to the driver and trail user. Reaction time is also directly related to the speed of the vehicle. Another factor affecting sight distance, and therefore reaction time, is the presence of obstacles. If the trail comes right out from behind a building, or if parked cars obscure the view, there will be less time to react. Another important factor is whether there are gaps in the motor vehicle traffic (due primarily to nearby traffic signals) that would allow trail users the time needed to cross safely.

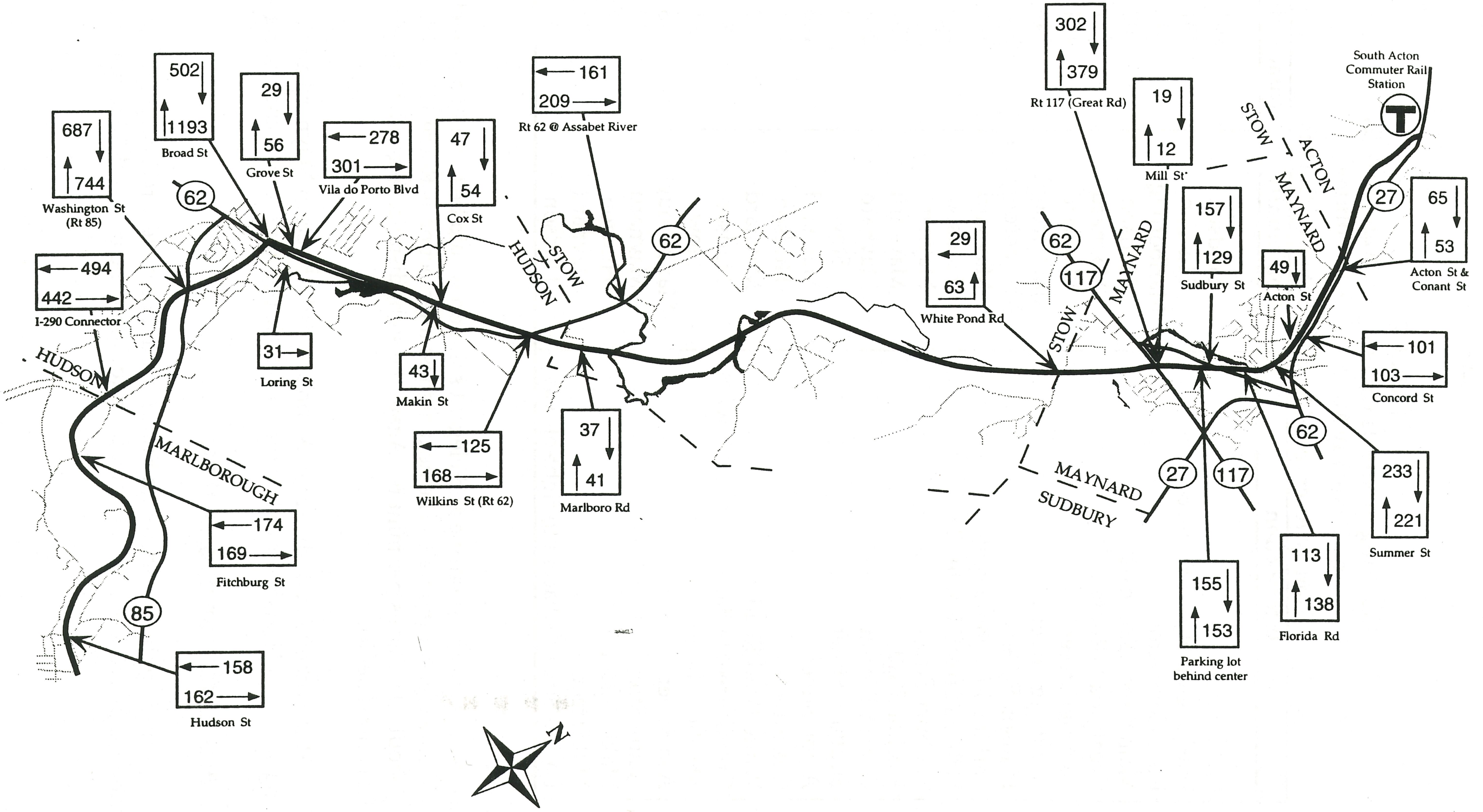
Finally, the width of the intersection is a factor, in that a wide intersection requires a trail user to spend more time in an exposed area. A wider intersection is also likely to have more travel lanes. One of the most dangerous situations in a multilane configuration is when traffic in some lanes stops and traffic in other lanes does not. All of these factors are important in designing the specific measures needed at a particular crossing. A traffic island can be provided in some cases to give users a refuge as they cross a wide, busy street.

Members of ARRT did traffic counts on most of the streets that cross the Marlborough Branch. Most of the counts were done in April and May 1996. They were done on Saturdays, between 11:00 AM and 2:00 PM. This time period was selected because it is likely to be a period both when the trail would be heavily used and when there would be relatively high local motor-vehicle traffic volumes. It is clearly not the peak for motor-vehicle volumes alone.

Table 7 ranks the intersections by total motor-vehicle volume crossing the right-of-way. (Total volume means two-way volume if it is a two-way street. Very minor roads were not counted) The results of the traffic counts are shown graphically in Figure 8. As indicated in Table 7, four of the five largest volumes are on numbered highways that cross the right-of-way: Routes 85, 62, 117 and the I-290 Connector. Just as the more local roads generally have less traffic, they also tend to have lower speed limits and lower prevailing speeds. The lower speeds allow more reaction time. In addition, the lower speeds, coupled with the probability that the more local roads are used by local people familiar with the trail, may result in an increased tendency to stop and yield to trail users.

The largest volume found in Table 7, 1,695 vehicles per hour on Broad Street, yields just under 30 vehicles per minute crossing the right-of-way. The next busiest crossing is Route 85 in Hudson. Although the sight distance is good, there is no traffic control device at this crossing. The I-290 Connector was built over the Marlborough Branch and now blocks it. A trail connection could be made via the traffic signal on this

FIGURE 8
Traffic Volumes on Streets Crossing the Marlborough Branch



Prepared by: the Central Transportation Planning Staff

TABLE 7
Ranking of Streets Crossing the Right-of-Way by Two-Way Motor-Vehicle Volume
Hourly Average of Midday Saturday Counts

Intersection	Community	Total Volume
Broad Street	Hudson	1,695
Washington Street (Route 85)	Hudson	1,431
I-290 Connector	Marlborough	936
Main Street (Route 62)	Hudson	702
Great Road (Route 117)	Maynard	681
Summer Street	Maynard	454
Fitchburg Street	Marlborough	343
Hudson Street	Marlborough	320
Parking lot behind center	Maynard	308
Wilkins Street (Route 62)	Hudson	293
Sudbury Street	Maynard	286
Florida Road	Maynard	251
Concord Street	Maynard	204
Sudbury Street	Stow	163
Acton Street	Maynard	118
Cox Street	Hudson	101
White Pond Road	Maynard	92
Grove Street (adjacent to right-of-way)	Hudson	85
Marlboro Road	Stow	81
Ash Street	Marlborough	78
Acton Street	Maynard	49
Makin Street	Hudson	43
Mill Street	Maynard	31
Loring Street (adjacent to right-of-way)	Hudson	31

connector. A more expensive and elegant solution would be to build a tunnel under the I-290 Connector for the trail. The next highest intersection is Route 117 in Maynard, with about 10 vehicles per minute. Again the sight distance is good, but there is no traffic control device.

At the other end of the scale, Acton and Mill streets in Maynard and Makin and Loring streets in Hudson have less than a vehicle per minute crossing the right-of-way.

E Access to Community Facilities

A trail on the Marlborough Branch would provide direct access to the centers of Marlborough, Hudson, and Maynard. In addition, the trail is close to many other municipal and commercial sites. Located in Marlborough Center are city hall, the library, and many shops and restaurants. Located adjacent to or near the potential trail are a senior center, Kelleher Field, the high school, the junior high school, a skating rink, the Assabet Valley Vocational School, and Fort Meadow Reservoir.

In Hudson, users could reach the Hudson Shopping Center as well as Shaw's Plaza. Located in the center of town are the town hall and the library, as well as many commercial establishments, including a bicycle shop. If trails were built on both the Central Mass. Line and the Marlborough Branch, the trails would come together in Hudson.

The character of the right-of-way is more rural in Stow, going through an apple orchard and passing by a wildlife refuge. It provides access to privately owned fields at Crow Island that are made available for youth soccer games. The right-of-way is within a half-mile of the town beach and is about a mile from a shopping center on Route 62.

Facilities served in Maynard Center include the town hall, the library, and a large commercial district. Access could be provided to the Green Meadow School and, eventually, Crowe Park and the high school. Mention was made in the Maynard Open Space and Recreation Plan of the need to develop a waterfront park and trail system along the Assabet River. If the town is interested, the impetus of this trail proposal could help drive a waterfront park project.

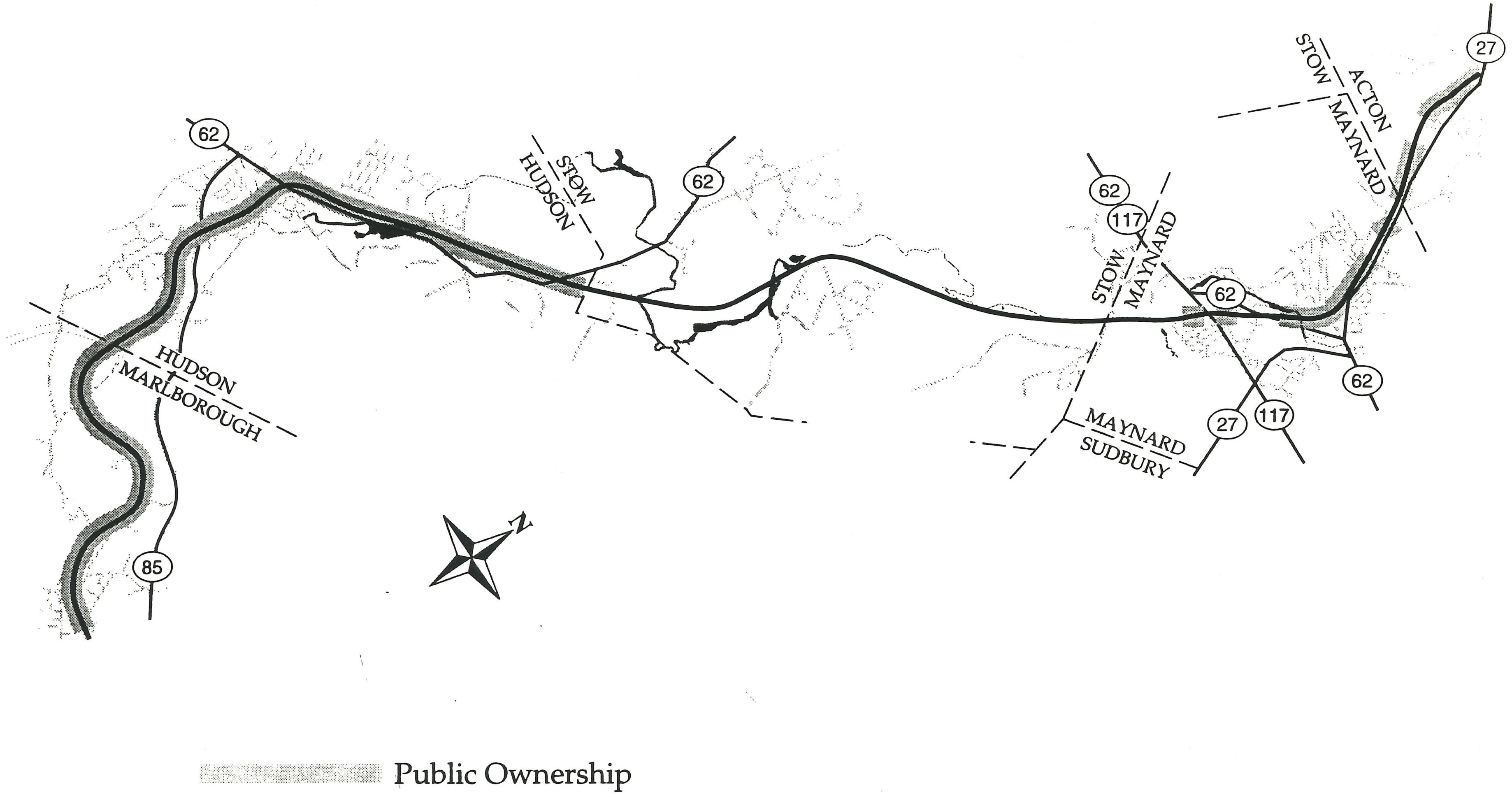
The trail ends in Acton at the commuter rail station. Users can reach Boston and points in between. Bicyclists may either leave their bicycles parked at the station or take them on board (most trains). In Acton, the trail provides access to the nearby Jones Field Playground, Exchange Hall, the Great Hill conservation trail, and the Discovery Museum.

F Ownership

Figure 9 indicates the portions of the right-of-way that are publicly owned. The public owners are the MBTA, the Town of Maynard and the City of Marlborough. The MBTA has no plans for this right-of-way and has supported the concept of a trail on the corridor. According to local proponents, the Town of Maynard acquired the right-of-way from the MBTA and then offered the land to abutters. Some of the right-of-way in Maynard is therefore in private hands.

The City of Marlborough recently acquired the right-of-way there from the MBTA through a Public Works/Economic Development grant. That grant specified that part of the right-of-way would be used for an access road to Stratus Computer

FIGURE 9
Ownership of Marlborough Branch



Prepared by: the Central Transportation Planning Staff

Corporation with an adjacent bicycle path.[2] The application for acquiring the right-of-way refers to plans for a trail on the rest of the right-of-way into Hudson.

The right-of-way in Hudson is owned by the MBTA. A short section near the center of town has been used for Vila do Porto Boulevard. The right-of-way in Stow and in western Maynard is privately owned. If easements could be obtained from those land owners, then the trail could proceed uninterrupted. An easement from a landowner would transfer liability and responsibility for the trail to the managing entity, in this case the local government. Legislation regarding leases for public ways as well as a sample lease are included in the appendix.

Local roads in the Stow-Maynard area were evaluated to determine if an on-road connection could work. While the local roads are fine for adept, adult bicyclists, they are not desirable for others with less experience. This evaluation is based on the width of the roads, sight distances, and the speed of motor vehicles.

From just west of Route 117 to the terminus at South Acton station, the right-of-way is a mixture of MBTA and private ownership. The privately-owned sections are shorter than is the case in Stow, and on-street or other diversions would be possible if easements cannot be obtained.

G Cost

The following cost estimates are extremely preliminary. Much more accurate estimates would be developed at the design stage. The actual cost would be determined if and when the project were bid out to construction.

The construction cost for the rail trail itself (not including significant intersection treatments), assuming $250,000 per mile (based on other projects), would be about $3 million. Fencing of some portions would add to that. The net cost of removing remaining track and ties would be dependent on their condition and the salvage value of materials and is assumed in the $250,000 per mile figure.

A large variable is the cost of intersection treatments. A new traffic signal and geometrics, without any land takings, could cost $250,000 per intersection. Simple signage would be under $1,000 per intersection. Without preliminary design, the number of intersections that might receive significant treatments is unknown. The total cost for 22 intersection treatments could realistically be anywhere from under $50,000 to

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[2] The preliminary design for the path does not meet AASHTO guidelines in two instances. First, the width of the path is 8 feet, below the 10 foot minimum AASHTO standard and the suggested 12 foot width for a multi-use trail. Second, the clearance distance from a fence is given as 9 inches, while the AASHTO standard is 3 feet.

$1 million. An additional cost would be incurred if it is decided to tunnel under I-290 rather than requiring trail users to go up to the at-grade intersection.

Adding the above, the total cost is estimated to range from $3.5 to $4.5 million. This estimate assumes that all existing bridges are structurally sound, which seems reasonable, given that they were built to support trains. Some of the bridges, however, have not been used for train service for over 40 years.

This preliminary estimate assumes one 12-foot trail. A separate pedestrian path or an equestrian trail would add to these estimates, although the latter, being unpaved, would be significantly less costly.

3 Recommendations

It is feasible to build the Assabet River Rail Trail. If the five communities of Marlborough, Hudson, Stow, Maynard, and Acton are interested in this project, they should pursue obtaining easements, leases, or ownership and proceed into design.

Right-of-Way

The first formal step toward this project's proceeding to design would be obtaining leases from landowners. The MBTA is a major landowner, controlling the right-of-way in Hudson and most of Acton. Marlborough recently purchased the right-of-way there from the MBTA. There are ten private landowners controlling the right-of-way in Stow and portions of Maynard and Acton. A lease arrangement would allow liability to be transferred from the landowner to the responsible operating entity, presumably the town. (See appendix.)

Before the Commonwealth would enter into any contracts to expend design funds, the right-of-way would need to be secured and agreements signed by the communities to accept responsibility for maintenance and policing.

Community Actions

The communities, with help from ARRT, also need to focus at the local level on safety issues. Discussions need to be held with local police departments, with town engineers and planners, and with community groups to determine what measures they would recommend to help ensure the safety of the future users of the trail.

These measures must go beyond engineering issues to include enforcement and education. These three areas, plus encouragement, have been identified as the "four *E*s" of bicycle and pedestrian programs. The engineering issues include signage, traffic signals, geometrics, pavement markings, and other traffic controls. Recommendations in the area of enforcement might include concentrated enforcement of traffic laws, and the assignment of police personnel during periods of heavy use or at times when use by school children is particularly high.

Education would be provided both to motorists who will cross the trail and to those who will be on it. Parents, perhaps through parent-teacher organizations, need to be told that this trail, although separated from traffic for most of its length, would have intersections that require their children to be cautious. That is, the fact that the trail would be "separated" from traffic may give some people, especially those who have had no experience riding on trails, the idea that it is appropriate for use by youngsters who have insufficient experience with traffic.

Grade crossings are a safety concern on all rail trails. On other trails in Massachusetts, all trail users are required to stop at all intersections. There are likely to be intersections on this trail where there are more trail users than motorists and consideration ought to be given to stopping the motorists. At other intersections as well, where there is no traffic control device, consideration needs to be given to stopping motor vehicle traffic, to allow the safe passage of trail users. These issues will be addressed in the design phase if the project goes forward.

The local communities would most likely be the entities responsible for maintenance and policing. To assist the local communities with these tasks, ARRT could help to form local volunteer committees. Such committees were formed along the Minuteman Bikeway to take on some general maintenance and act as a clearinghouse for discussion of issues that have come up.

Phased Construction

It is possible to build a portion or portions of the trail if all easements cannot be obtained. Some sections make sense standing alone, such as the Maynard Center–to–South Acton portion. Likewise, a link from Marlborough Center to Hudson Center would be well used. In areas where short sections of the right-of-way are unavailable, the trail could be linked via the street system or adjacent lands.

The Central Mass. right-of-way is being studied as a possible site for a trail. That feasibility study, also being done by CTPS, is due to be published in March 1997. The Central Mass. line and the Marlborough branch cross in Hudson, just west of Wilkins Street. If the Central Mass. trail happens, then it could be connected to an Assabet Trail, either where the two rail lines cross or further west in Hudson Center. Additional links could be made through Stow and Maynard using federal military lands that are scheduled to be turned over to the Commonwealth this year. When that transaction occurs, the communities, with assistance from ARRT, could plan and discuss ideas on trail connections.

Design and Construction

When all right-of-way, maintenance and policing issues are resolved, then the communities will be ready to apply for design funds. (It should be remembered that there is no guarantee that either design or construction funds would be available when the project is ready to move into these stages.) If the Minuteman model is followed, then the design and construction would be paid for with state and federal funds. The best method would be for a joint application (by all communities concerned) to be submitted to MAPC, which in turn would give the project a priority and present it for funding to MassHighway.

Depending on the scope of the proposal and issues raised, the design phase could take a year or more. It is during this phase that detailed discussions on location of the trail, trail dimensions, and intersection treatments would take place. Public meetings would be held as well as meetings with local staff. Local conservation commissions would review the plans and indicate issues they wanted addressed.

Once the design is complete and approved, constructions funds would be sought. Depending again on the scope of the project, the clearing of the right-of-way and construction of the trail would take one or two construction seasons. Once the trail is complete, it would be turned over to the community. If design funds were applied for and received this year, then, with no major delays, a trail could be in place by 2001.

Appendix

Massachusetts General Laws, Chapter 21, Section 17C

21 §17C. Public use of land for recreational purposes; landowner's liability limited; exception

An owner of land who permits the public to use such land for recreational purposes without imposing a charge or fee therefor, or who leases his land for said purposes to the commonwealth or any political subdivision thereof shall not be liable to any member of the public who uses said land for the aforesaid purposes for injuries to person or property sustained by him while on said land in the absence of willful, wanton or reckless conduct by such owner, nor shall such permission be deemed to confer upon any person so using said land the status of an invitee or licensee to whom any duty would be owed by said owner. The liability of an owner who imposes a charge or fee for the use of his land by the public for recreational purposes shall not be limited by any provision of this section. No contributions or other voluntary payments not required to be made to use such land shall be considered a charge or fee within the meaning of this section.

PERMISSION FOR PUBLIC USE OF THE WARNER TRAIL (A PATH) ON PRIVATE LAND

(a revocable voluntary agreement without compensation)

Section A:-Description of Land:

A ten foot (10') easement as shown on attached plan entitled "Proposed Easements, Warner Trail in Foxborough, Ma." by John Rhoads, dated September 4, 1990, being on land owned by , designated as Lot on Sheet of the Town of Foxborough Assessors Maps.

I, , agree

1. To allow the public to pass over the above-described path on our land on foot, snowshoes, or skis. This agreement does not authorize presence on our land of any power equipment or motor vehicle, or any gun, bow-and-arrow, or other weapon.

2. To allow the Foxborough Conservation Commission to perform initial preparation of the path provided that there shall be no excavation of soil, no filling, no altering of fences or walls, and no removal of trees exceeding 2 inches in diameter except with our consent.

3. That the Conservation Commission may maintain the path by removing fallen branches and trees from the path and cutting back live branches and shrubs, to the extent necessary for easy passage, without consulting us in each instance.

4. That the Conservation Commission may mark the path with its standard markers which designate the allowed kinds of traffic and show that the path is on private land.

5. That the Conservation Commission may show the path on maps prepared for distribution to the public, provided the private status of the land and the uses allowed on the path are evident from data printed on the map.

6. To inform the Conservation Commission (a) of any special instructions we may have in regard to path maintenance; (b) of our intention to withdraw any permission granted by this agreement; and (c) of any change of ownership of the land.

7. That this permission for public use of a path on our land is automatically revoked upon repeal of Massachusetts General Laws Chapter 21, Section 17C, a copy of which is attached hereto.

______________ Owner Date: 7/30/92

The Foxborough Conservation Commission agrees, with respect to the above-described path and adjacent private land, that it will confine its actions to those that are specifically permitted under this agreement.

For the Commission William C. [illegible] Chairman

For the Commission

For the Commission Robert W. Brett

Harold W. Blumberg

Date: August 16, 1992